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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,804	06/12/2006	Kiyotaka Matsuda	KOD177B.001APC	6973
20995 7590 11/28/2008 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER MOMPER, ANNA M	
			ART UNIT 3657	PAPER NUMBER
			NOTIFICATION DATE 11/28/2008	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/595,804	Applicant(s) MATSUDA ET AL.	
	Examiner ANNA MOMPER	Art Unit 3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 1 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following correspondence is a first office action on the merits. Preliminary amendment received 5/12/2006 has been entered. Claims 1-13 are currently pending and have been considered below.

Election/Restrictions

1. Applicant's election without traverse of Group 2 in the reply filed on 10/31/2008 is acknowledged. Claim 1, reading on the non-elected Group 1, has been withdrawn from consideration.

Claim Objections

2. Claim 2 is objected to because of the following informalities: Claim 2 recites the claim limitation "opposing to the angle of helical teeth". The claim limitation "the angle of helical teeth" has not been previously introduced into the claim and thus lacks an antecedent basis and should instead read "an angle of helical teeth". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 2-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2, 4, and 6 recite the claim limitation "its core cords" and "its back layer". The pronoun "its" renders the claim indefinite as it can bring question to what aspect "its" is referring to.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2-3, 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al. ("Noise and Life of Helical Timing Belt Drives") in view of Nakanishi (US 5,346,731).

As per claim 2, Ueda et al. discloses a helical synchronous belt having core cords (Pg. 274, "2. Forms and Dimensions of Test Belts and Pulleys", Ln. 4-5) and a helical tooth angle set to 3, 5 or 10° (Pg. 274, "2. Forms and Dimensions of Test Belts and Pulleys", Ln. 5-8).

Ueda et al. fails to explicitly disclose the core cords twisted at an angle opposing to the angle of the helical teeth and having a core cord twist angle of 2° to 15° or 4.8° to 10.2° .

Nakanishi discloses a belt (A) in which a cord (7) is twisted at an angle of 10° (Col. 2, Ln. 53-57).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the helical synchronous belt of Ueda et al. to include the core cord twist angle being between 4.8° to 10.2° , as taught by Nakanishi, for the purpose of providing the belt with a higher flex fatigue, dimensional stability and longer life (Col. 2, Ln. 11-21).

The Ueda et al. and Nakanishi combination fail to explicitly disclose the core cords are twisted at an angle opposing to the angle of the helical teeth. It would have been an obvious matter of design choice to include the core cords are twisted at an angle opposing to the angle of the helical teeth, since it would have been well known in the art to have the force vectors of the cords opposing the force vectors of the helical teeth in order to increase life of the belt.

As per claim 3, Ueda et al. also discloses a helical tooth angle set to 5° or 10° (Pg. 274, "2. Forms and Dimensions of Test Belts and Pulleys", Ln. 5-8).

Ueda et al. fails to explicitly disclose the core cords twisted at an angle of 10.2° or 4.8° .

Nakanishi discloses a belt (A) in which a cord (7) is twisted at an angle of 10° (Col. 2, Ln. 53-57).

While Nakanishi does not explicitly disclose the cord being twisted at an angle of 10.2°, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the helical synchronous belt of the Ueda et al. and Nakanishi combination to include the cord being twisted at an angle of 10.2°, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

As per claims 5 and 7, Ueda et al. also discloses the use of the helical synchronous belt in a driving carriage (Pg. 274, “1. Introduction”, Ln. 1-3).

8. Claims 4, 6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al. (“Noise and Life of Helical Timing Belt Drives”) in view of Nakanishi (US 5,346,731) and further in view of Fujita (US 6,216,853).

As per claims 4 and 6, Ueda et al. also discloses the core cords being made of glass fiber (Pg. 274, “2. Forms and Dimensions of Test Belts and Pulleys”, Ln. 4-5). The Ueda et al. and Nakanishi combination fail to explicitly disclose a back layer and teeth made of urethane resin.

Fujita discloses a toothed belt (1) having a body (1A) and teeth (2) being made from urethane resin (Col. 4, Ln. 17-24).

It would have been obvious to one having ordinary skill in the art at the time the invention to modify the belt of the Ueda et al. and Nakanishi combination to make the back layer and teeth of the belt made of urethane resin, as taught by Fujita, for increasing thermal and strength properties. Also

note *In re Leshin*, 125 USPQ 416, and that it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

As per claims 8 and 9, Ueda et al. also discloses the use of the helical synchronous belt in a driving carriage (Pg. 274, "1. Introduction", Ln. 1-3).

9. Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al. (US 7,008,341 B2) in view of Nakanishi (US 5,346,731) and further in view of Ueda et al ("Noise and Life of Helical Timing Belt Drives").

As per claim 10, Wilson et al. discloses a helical synchronous belt comprising:
a back layer (12);

helical teeth (18) configured to mesh with a pulley (Col. 2, Ln. 59-62) and arranged at a helical tooth angle ($90-\alpha$) which is formed by a tooth inclination line of each helical tooth and a line perpendicular to a longitudinal direction of the belt (Fig. 1);
and

core cords (24) embedded between the back layer and the teeth and aligned in the longitudinal direction of the belt for reinforcing the belt (Fig. 2), and the helical tooth angle are set at 5° to 15° (Col. 2, Ln. 28-30).

Wilson et al. fails to explicitly disclose the cord twisted at an angle which is formed by a twist inclination line of each core cord and a line parallel to a longitudinal direction of the core cords, and the twist angle is an angle between 2° and 15° .

Nakanishi discloses a belt (A) in which a cord (7) twisted at an angle which is formed by a twist inclination line of each core cord and a line parallel to a longitudinal

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direction of the core cords (Fig. 2, Fig. 3), and the twist angle is an angle of 10° (Col. 2, Ln. 53-57).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the helical synchronous belt of Wilson et al. to include the core cord twist angle being between 2° and 15° , as taught by Nakanishi, for the purpose of providing the belt with a higher flex fatigue, dimensional stability and longer life (Col. 2, Ln. 11-21).

The Wilson et al. and Nakanishi combination fail to explicitly disclose the core cords are twisted at an angle opposing to the angle of the helical teeth. It would have been an obvious matter of design choice to include the core cords are twisted at an angle opposing to the angle of the helical teeth, since it would have been well known in the art to have the force vectors of the cords opposing the force vectors of the helical teeth in order to increase life of the belt.

As per claim 13, Wilson et al. also discloses no canvas formed on the helical teeth (18).

10. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al. (US 7,008,341 B2) in view of Nakanishi (US 5,346,731) and further in view of Ueda et al. ("Noise and Life of Helical Timing Belt Drives").

Wilson et al. discloses all elements of the claimed invention as described in claim 10 above, but fails to explicitly disclose the core cord twist angle is set 4.8° or 10.2° and the helical tooth angle being 5° or 10° .

Nakanishi discloses a belt (A) in which a cord (7) is twisted at an angle of 10° (Col. 2, Ln. 53-57).

While Nakanishi does not explicitly disclose the cord being twisted at an angle of 10.2° , it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the helical synchronous belt of the Ueda et al. and Nakanishi combination to include the cord being twisted at an angle of 10.2° , since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

The Wilson et al. and Nakanishi combination fail to explicitly disclose the helical tooth angle being 5° or 10° .

Ueda et al. discloses a helical synchronous belt having core cords (Pg. 274, “2. Forms and Dimensions of Test Belts and Pulleys”, Ln. 4-5) and a helical tooth angle set to 3, 5 or 10° (Pg. 274, “2. Forms and Dimensions of Test Belts and Pulleys”, Ln. 5-8).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the helical synchronous belt of Wilson et al. to include the helical tooth angle being 5° or 10° , as taught by Ueda et al., for the purpose of reducing noise.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson et al. (US 7,008,341 B2) in view of Nakanishi (US 5,346,731) and further in view of Ueda et al (“Noise and Life of Helical Timing Belt Drives”) and Fujita (US 6,216,853).

The Wilson et al. and Nakanishi combination disclose all elements of the claimed invention as disclosed in claim 10 above, but fail to explicitly disclose the back layer and

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the helical teeth are made of urethane resin, and the core cords are made of aramid fiber or glass fiber.

Ueda et al. discloses a belt having core cords being made of glass fiber (Pg. 274, “2. Forms and Dimensions of Test Belts and Pulleys”, Ln. 4-5).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the helical synchronous belt of the Wilson et al. and Nakanishi combination to include the core cords being made of glass fiber, as taught by Ueda et al., for the purpose of providing sufficient tensile strength.

The Wilson et al., Nakanishi and Ueda et al. combination fail to explicitly disclose a back layer and teeth made of urethane resin.

Fujita discloses a toothed belt (1) having a body (1A) and teeth (2) being made from urethane resin (Col. 4, Ln. 17-24).

It would have been obvious to one having ordinary skill in the art at the time the invention to modify the belt of the Wilson et al., Nakanishi and Ueda et al. combination to make the back layer and teeth of the belt made of urethane resin, as taught by Fujita, for increasing thermal and strength properties. Also note *In re Leshin*, 125 USPQ 416, and that it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 6:00-3:30 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley T King/
Primary Examiner, Art Unit 3657

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